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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/719,252

11/21/2003

Lance S. Robertson

TI-33885.1

2804

23494

7590

10/13/2004

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EXAMINER

MULPURI, SAVITRI

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------------|--|
| Office Action Summary | Application No. 10/719,252 | Applicant(s) ROBERTSON, LANCE S. | |
| | Examiner Savitri Mulpuri | Art Unit 2812 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to the applicant's communication filed on 8/9/2004.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Downey (US 6,069,062).

Downey teaches a device such CMOS with shallow doped junctions regions, where in halogenated elements e.g., fluorine ions are implanted into amorphous region of the semiconductor, wherein amorphous region resulted from boron implantation (see col.3, lines 1-6). Downey teaches the depths of the fluorine and boron are equal or fluorine is slightly deeper than boron (see col.2, lines 62-67, abstract and summary of the invention). Instant product-by-process claims is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17(footnote). See In re Brown, 173 USPQ 685; In Re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ161; In re Wertheim, 191 USPQ90In re Marosi et al, 218 USPQ 289: and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is

determined in "product by process" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "product by process" claims are not. Note that applicant has burden of proof in such cases, as above case law makes clear.

Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Kato (5,654,209).

Kato teaches transistor devices by forming junctions through implantation technique of chlorine ions and dopant ions, wherein chlorine is implanted into amorphous regions since kato teaches chlorine ions are implanted ions after implantation of dopant ions (see abstract)

Response to Arguments

Applicant's arguments filed 8/9/2004 have been fully considered but they are not persuasive. Applicant argue that claim 19 comprises the limitations of implanting at least a halogen species within an at least partially formed semiconductor devise to form at least amorphous region, doping at least a portion of the at least one amorphous region to form at least one junction within the at least partially formed semiconductor device; and activating the doped portion of the at least one amorphous region of the at least partially formed semiconductor device by solid phase epitaxial growth.

Applicant argues that Downey teaches implanting fluorine into amorphous region and forming the amorphous region, where as instant invention claims implanted halogen species to form at least one amorphous region, which is distinguishable from Downey reference. Applicant also argues that Kato also implanting chorine ions after implanting dopant ions. However, such argument with respect to teachings of both Downey and

Kato is not valid argument, when claims are called for product-by- process claims. Instant product-by-process claims is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17(footnote). See In re Brown, 173 USPQ 685; In Re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ161; In re Wertheim, 191 USPQ90In re Marosi et al, 218 USPQ 289: and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is determined in "product by process" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "product by process" claims are not. Note that applicant has burden of proof in such cases, as above case law makes clear.

Conclusively it is immaterial whether the halogen ion implantation is done in into crystalline region or amorphous region, also immaterial whether the halogen ion implantation is done whether with an at least partially formed semiconductor device or directly into a substrate as starting process step. Downey also teaches, in background invention, for LDD implantation for submicron CMOS technologies for shallow junction, wherein shallow junctions for LDD and shallow S/D implantation are done after gate formation, which is interpreted as at least partially formed semiconductor device.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 571-272-1677. The examiner can normally be reached on Mo-Fri from 8 to 4.30. p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on 571-272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Savitri Mulpuri
Primary Examiner
Art Unit 2812